AMENDMENTS TO THE CLAIMS

The following is a complete listing of the claims, and replaces all earlier versions and listings.

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1. (Previously Presented) Display apparatus comprising:

electron emission elements aligned in a matrix on a substrate and driven by column lines and row lines;

a column line drive unit for driving the column lines in a pulse width modulation manner by applying to each column line one of pulses which have different pulse widths respectively corresponding to gradation levels of a luminance signal to be displayed in the display apparatus;

a row line drive unit for sequentially driving the row lines;

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first means for defining a plurality of blocks each of which includes at least two column lines, by dividing the column lines and a plurality of gradation steps each of which includes at least two gradation levels, by dividing the gradation levels, and detecting a block driving status which indicates how the gradation levels in each of the gradation steps are applied to the columns in each block; and

second means for defining a plurality of periods within one horizontal interval, the periods being associated with widths of approximating pulses corresponding respectively to the gradation steps, calculating a voltage drop due to a resistance in the row line and the current flow by the approximating pulses on the column lines during each of the defined periods on the basis of the detected block driving status, determining a block voltage drop for each block estimated from the voltage drops over the plurality of periods,

and modifying the luminance signal for each block according to the determined block voltage drop.

2. (Original) The display apparatus according to Claim 1, wherein said first means detects the block driving status for each block by setting subintervals in one horizontal interval each of which corresponds to each block and compares the luminance signal with the gradation steps during each of the subintervals.

3. (Original) The display apparatus according to Claim 2, wherein said first means detects the block driving status which indicates how many column lines in the block have the gradation levels in each of the gradation steps.

4. (Previously Presented) The display apparatus according to Claim 1, wherein said column line drive unit produces output voltage with the pulse width varied according to a corrected luminance data added to a correction quantity calculated from the determined block voltage drop.

5. (Original) The display apparatus according to Claim 1, wherein said column drive unit produces output voltages varied according to the determined block voltage drops.

6. (Original) The display apparatus according to Claim 5, said column line drive unit includes output circuits provided for the respective column lines and each output circuit selects either one of a plurality of voltage supply units having different

output potentials, and a peak value of a pulse applied to each column line is determined by a potential of the selected voltage supply unit.

7. (Previously Presented) The display apparatus according to Claim 1, wherein said second means modifies the luminance signal for each column line by producing a correction data for each column line in the block through a linear interpolation of the block correction data calculated from the block voltage drop.

8. (Previously Presented) The display apparatus according to Claim 1, wherein said row line drive unit comprises two subunits provided on both sides of the row lines and said subunits apply an equal voltage at the same timing to each row line.

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9. (Currently Amended) The display apparatus according to ~~one of~~ ~~Claims~~ Claim 1 ~~to 8~~, wherein said electron emission element is a type of cold cathode.

10. (Cancelled)

11. (Previously Presented) A method of driving a display apparatus comprising electron emission elements aligned in a matrix on a substrate and driven by column lines and row lines, a column line drive unit for driving the column lines in a pulse width modulation manner by applying to each column line one of pulses which have different pulse widths respectively corresponding to gradation levels of a luminance signal to be displayed in the display apparatus and a row line drive unit for sequentially driving the row lines, said method comprising the steps of:

calculating a voltage drop due to a resistance in the row line and the current flow on the row line, and

modifying the luminance signal according to the calculated voltage drop so that for the same luminance data, a width of a voltage pulse applied to a column line is longer as the column line is aligned more distant from a terminal connected to the row line drive unit.

12. (Previously Presented) A method for driving a display apparatus comprising electron emission elements aligned in a matrix on a substrate and driven by column lines and row lines; a column line drive unit for driving the column lines in a pulse width modulation manner by applying to each column line one of pulses which have different pulse widths respectively corresponding to gradation levels of a luminance signal to be displayed in the display apparatus, and a row line drive unit for sequentially driving the row lines, said method comprising the steps of:

defining a plurality of blocks each of which includes at least two column lines by dividing the column lines and a plurality of gradation steps each of which includes at least two gradation levels by dividing the gradation levels;

detecting a block driving status which indicates how the gradation levels in each of the gradation steps are applied to the columns in each block;

defining a plurality of periods within one horizontal interval, the periods being associated with widths of approximating pulses corresponding respectively to the gradation steps;

calculating a voltage drop due to a resistance in the row line and the current flow by the approximating pulses on the column lines during each of the defined periods

on the basis of the detected block driving status, determining a block voltage drop for each block estimated from the voltage drops over the plurality of periods; and

modifying the luminance signal for each block according to the determined block voltage drop.

13. (Original) The method according to Claim 12, wherein said detecting step detects the block driving status for each block by setting subintervals in one horizontal interval each of which corresponds to each block and compares the luminance signal with the gradation steps during each of the subintervals.

14. (Original) The method according to Claim 13, wherein said detecting step detects the block driving status which indicates how many column lines in the block have the gradation levels in each of the gradation steps.

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15. (Cancelled)

16. (Previously Presented) Display apparatus comprising:

an image forming device driven through a plurality of row and column lines arranged in a matrix on a substrate;

a column line drive unit for applying to the plurality of column lines a voltage pulse of width corresponding to a luminance data;

a row line dive unit for sequentially selecting and scanning the plurality of row lines; and

means for dividing one horizontal interval into a plurality of periods, and for calculating a voltage drop per each of the plurality of periods divided, thereby approximating the luminance data based on the voltage drop.

17. (Previously Presented) The display apparatus according to claim 16, further comprising:

means for calculating an approximating value data per each of the plurality of periods divided based on the voltage drop; and

adding means for adding the approximating value data to the luminance data and outputting an approximated luminance data.

18. (Previously Presented) The display apparatus according to claim 16, wherein

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the means for calculating the voltage drop calculates the voltage drop per each of blocks of the column lines, wherein the number of the blocks is smaller than a total number of the column lines.

19. (Currently Amended) The display apparatus according to claim 18, further comprising:

interpolation means for calculating the approximating value data corresponding to the luminance data of each of the column lines in a direct interpolation based on the ~~approximation~~ approximating luminance data per each block of the column wirings.